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Security Camera Network, Privacy Protection and Community Safety

Sport safety improvement using security camera without audience privacy violation

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Abstract

Crime in the sport stadium is an unacceptable situation. It is necessary to watch and inform to the related person. The existed system to date is not replied such a requirement. In this paper, we propose the use of today information technology for crime in watching and investigation in the sport stadium. The system known as wireless-touch screen that uses for sport stadium surveillance, detection, and prevention criminality. It is cheap and movable instrument which is suitable for portable application. The additional system for privacy protection using the camera with angle sensor and spectator's information is also proposed.

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Keywords: Innovative communication; wireless-touch screen; crime watching; sport management; information technology

1. Introduction

Crime in the stadium is needed to prevent and given the adequate safety. A crime incident is significant not only the specific tournament, it results in audience reduction into competition/game or in to the country (Horn and Breetzke, 2009). Crime prevention has been illustrated by assessment of prevention and reduction crime consists of three components: the victims, location of problem, and offender. This study, crime events is defined as a dangerous state in sport competition, where most crime state occurs in mega-events such as “The Kings Cup International Boxing Tournament” in Thailand. Mega-events are probably created some societal problems such as traffic congestion and increased crime (Farrell, 2000). Moreover, social-problems include negative influence on conflict between the host community and the visitors because of difference standards of living, economics, and purchasing power gaps. Therefore, the location of problem is in the stadium. The audience whom is known as the victims will face the dangerous state in the stadium. Offender is a person who does not pay attention on game but make for crime such as thief, pickpocket, and rape (Boella, et al., 2006).

Generally, the sport audiences require the safety as same as a tourist (Donaldson, 2007) either the safety place, or security center. Therefore, screening and surveillance by local residents, employees, and detective system is significant. Community safety is capacity of community workers are the use of skills, knowledge and techniques in order to prevent and reduce crime in which to live. In the stadium, the audiences are an interrelated purpose, so it is

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the community. The viewers as local residents can capacity to prevent and reduce crime (Kim, et al., 2006). In new world of community safety assessment suggested that partnership plans should be reduce crime state because individual will be assign the function, way of function, ways of working, and priorities of working. However, community safety in the stadium is not actually plan. The major working in crime state is security center while the audiences are also participants. For instance, the audiences report and ask for help to security center. So, report events can show rapidly to security center by information technology.

In this study, we propose the use of information technology, especially, camera with privacy protection function for crime prevention and investigation in the sport stadium. In principle, the required information from the competition and audience is linked via a wireless communication. It can be used to record and detect the unsuitable situation, which is described as following details: a cheap tool is made by using a computer screen size 10 inches, with a portable touch screen and camera, so it can be installed easily to human body. This can be used to detect crime in the stadium. In addition, every seats and passages are known and watched by using security camera, where most of images are coded and can be opened only by the police. The seat number is known and allowed to display for monitoring purpose. The police only receive the images when a crime occurs. Hence, the privacy is protected.

2. Sport safety improvement

Information technology is one strategy for detective system that can be used for crime watching, detection and investigation, which may be reduced the risks. It is involved by a computer that uses to harvest the required information. Science, the new information science is required, and it is important in society, which is one of the three cores of science. For instance, Information Technology, Nanotechnology and Biotechnology, which is said to be affected to the society in the future, and it is currently the most discussion widely in technology. We are recognized information technology by the short name as IT (Information Technology), which is very important for Thai government for the current strategic planning. The Minister of IT has established a new position in such a duty. IT is a feature that is changed rapidly. Today, the advanced technologies can be researched via the internet widely. In practice, the internet connection now is more reliable, where the several connection techniques are available, for instance, mobile telephone, satellite, fiber optic, Ad Hoc Network (Basagni et al., 2004; Hu and Chen, 2003; Cseh, 2005). Hence, more reliable IT, more techniques can be used for crime watching and investigation, which is included crime prevention.

The proposed system for crime watching is described as following: (i) screening - identifying crime patterns using local knowledge, basic data and police/practitioner intelligence, (ii) analysis - using the collected information to understand the key issues/causes of a crime or disorder problem and 'drilling down' to fully comprehend the nature of the problem and its extent, (iii) response - developing and implementing a 'solution' – a scheme of activities to challenge the problems (with clear objectives, tasks and timeline), and assessment – reviewing the solution; did it work, or is it working and in need of extension. The use of information technology for crime prevention and reduction can be affected in any situation. It must be provided the management data base, sharing the appropriate information, monitoring and providing intervention strategies to reduce crime, which is included in the prevention strategic planning. Therefore, in this proposed system, information technology is essential for the crime detection system in the sport stadium.

In the proposed system, information technology is performed as the detective system in sport stadium, which is separated into two ways: intra-communication system and inter-communication system. Firstly, the intra-communication system is system that manages with committee as shown in Figure 1. Committees can upload data on central server and they will complete 4 tasks as details: AD-card, competition area, draw the opponent, identify information of the audience that require for prevention planning program, and the competition results. AD-card is sent to the viewers. In competition area, committee sends data to referees, warm-up areas, and center for reporting to committee. In the planning prevention program, it is both pre-paring strategic and active plans. In preparing plan, the committee must draw the strategic planning prevention program with security center. This team is responsibility two tasks: (i) individual tasks: the committee must send data about the audience to data base, fill the audiences information, check a guard position, writing planning, monitors and evaluation plan. The security center is in duty: prepare guard capacity, plan writing, identified guard job, and train and practice guard; (ii) cooperated tasks: join planning, train and practice all staff at least 2 times, and writing emergency plan. The most detail of planning is the signalman who stands by in the security center will review and revise the situation every 5 minutes. From above explanation, we called the intra-communication system which is described by Figure 1.

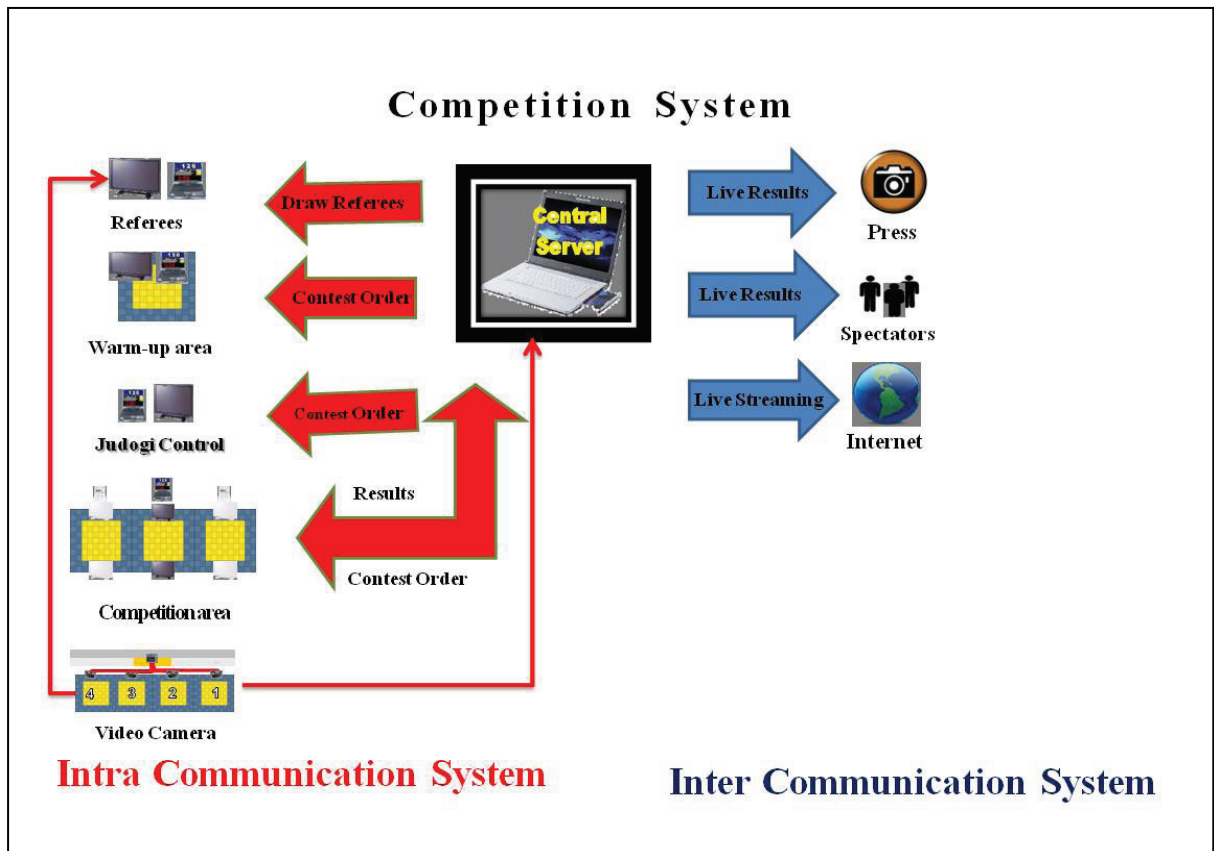


Figure 1 shows the use information technology and sports communication.

Secondly, the inter-communication system is a system that report results of competition to press, which is shown in Figure 2. In the previous competition, committees report results of competition to press for audience. Generally, the audiences have been ignored by the committee, which results that the audiences receive only reports of the opponent. They lack of information about the competition program and less understanding the sports because each of game did not show the details such rules of sports, understanding sports, competition program, and history of athletes. Therefore, the audiences are not crazy in sports. If we use the inter-communication system in competition, the audiences will be happy because they receive the required information.

In sport competitions, when the emergency event occurs in the stadium, therefore, the community or competition area will have the strong ability to prevent crime, which can be occurred in any position around the stadium. Camera and wireless touch screen is become a useful tool for developing systematic of community safety in sports management, where there are many types of software available and affordable for reducing risks. Therefore, we have refreshed the concept of information technology system in sport management, to response need of the audiences and to increase customers.

In the sport competitions, stadium is monitored by using the detective system, which is described as followings: (i) the incoming audience fill in a form and send it by e-mail or post, (ii) The viewers uploads data on central server and they can connect to server, (iii) security center receive air-raid signal, (iv) The signalman must check position of viewers who contract security center mark a map of stadium, (v) the signalman check a scheme of activities, reviewing the solution every 5 minutes. The advantages of the viewers are the information about competition program, understands the sports (the details such as rules of sports, understanding sports, competition program, and history of athletes), and secure in games within the stadium.

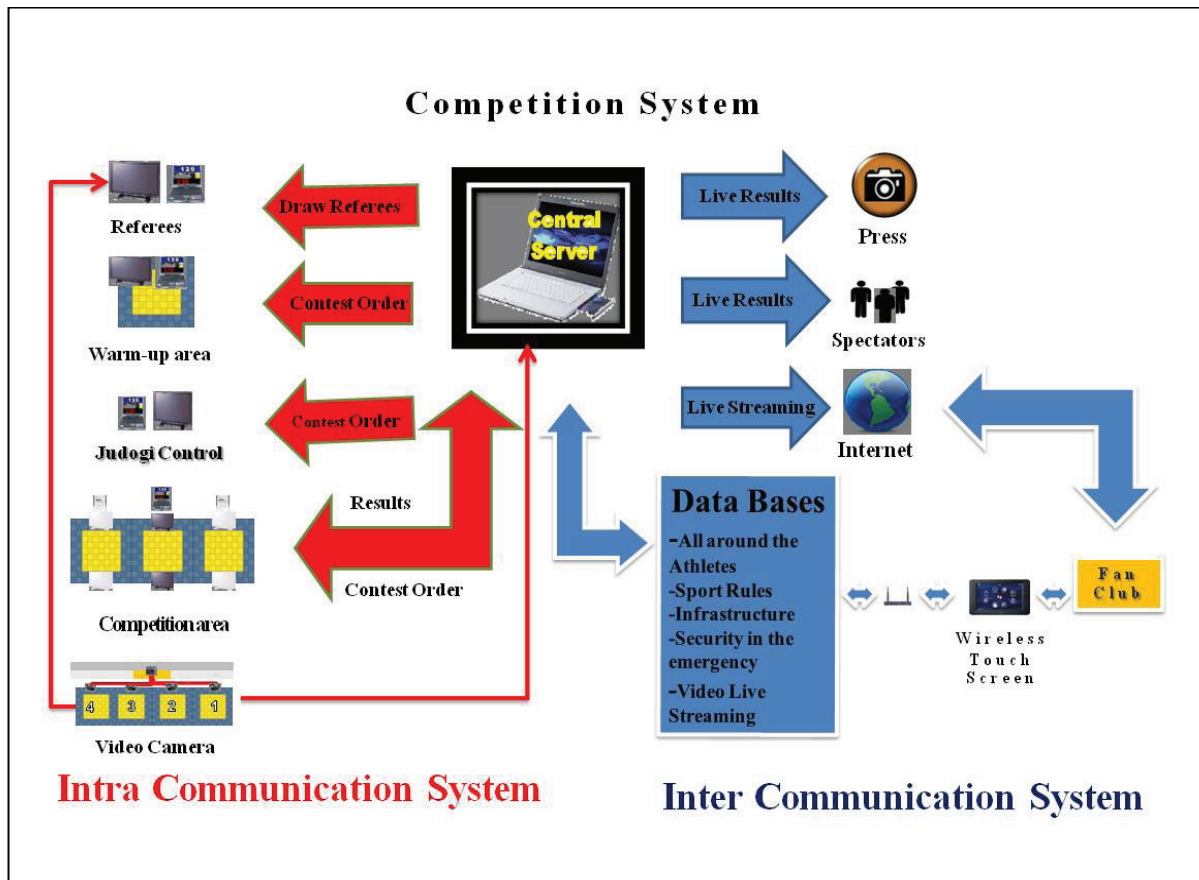


Figure 2 shows the use of information technology with communication safety and sports communication.

3. Case study

3.1 Case study when it is not dangerous situation

After the viewers register and upload data on the central server, where it will be analyzed and clear as the nature situation. AD-card will send to the viewers. The security center receives the information data of the viewers, this information sent to the prevention program and run on after the viewers being registered. In natural situation, the audience receives data from inter-communication system, so they can enjoy with the more information of sport such as a rule of sport, history of athletes, and results of competition.

3.2 Case study when it is dangerous situation

In the King-cup event, which is the mega-event, where the audiences do not have security within the stadium. The dangerous event may be occurred during the competition event. In case, dangerous situation is occurred. The person who installs the system can take the images for investigation, make a call or press forward the wireless-touch screen and send data to the security center. The cameras are installed around the stadiums which they are allowed to access to the dangerous event in the short time. Hence, the security center was alarm and red light on the map is on until the signalman response. The signalman who has seen light and heard by himself, then he must call to the guard in the stadium. Guards who stand by in the closed areas can access to the crisis area in time.

4. Privacy protection

Every seats and passages are watched by using security camera, where most of images are coded and can be opened only by the police. The police on receive the images when a crime occur. Hence, the privacy is protected. In operation, the camera with angle sensor should be calibrated. Every audience is asked at the entrances if the images

of him/her can be broad-casted or cannot. The part of the picture of person who does not give the permission is “mosaic”.

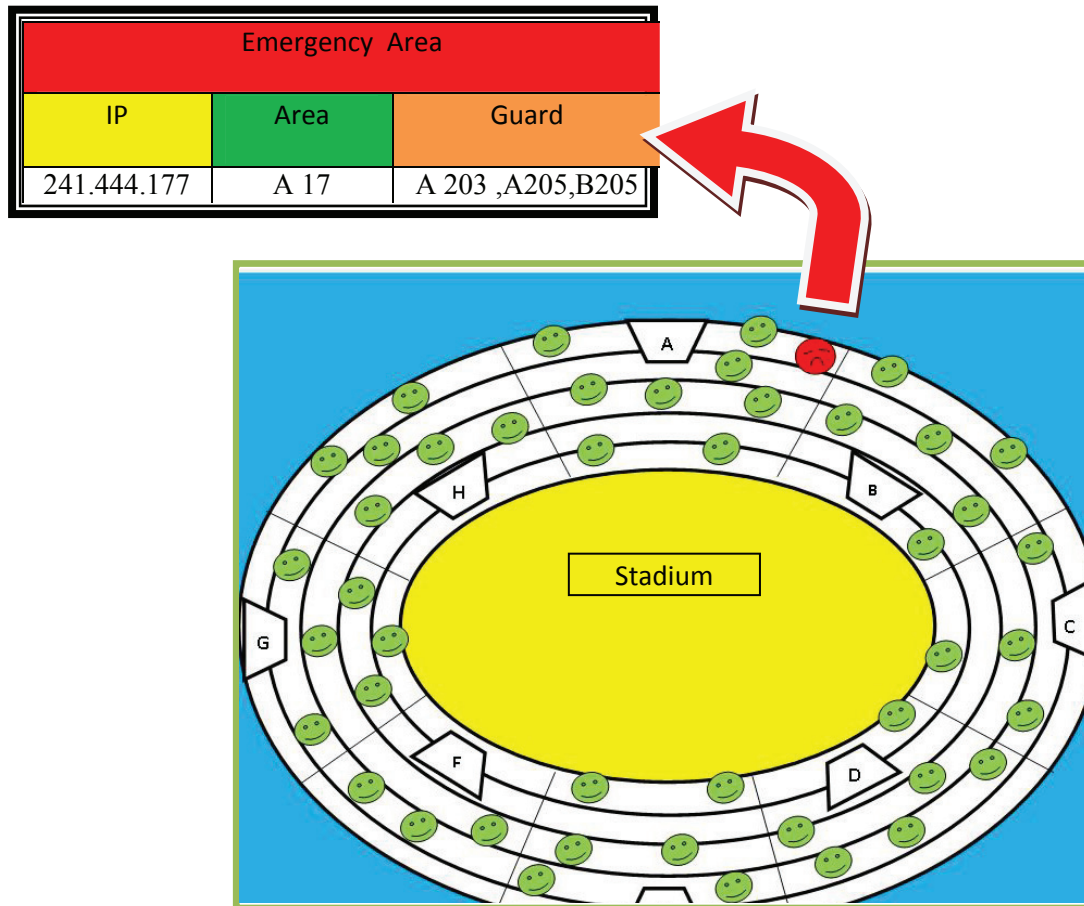


Figure 3 shows the stadium that the crime watching is installed.

5. Conclusion

In this study shown that a ‘crime watching within the sport stadium’ was proposed by using the detective system. It can be used at any time in the stadium, and can be used to detect the crisis situation when the problem is suddenly occurred. It was shown that this system is suitable for sport management improvement. Moreover, the use of wireless-touch screen of the new sports audiences without their knowledge to the sport can be useful, and the privacy in viewing and sports audiences are safe because the camera and wireless-touch screen was constructed cheaply and efficiency. Therefore, the benefits of the proposed system for the audiences can be concluded that the audiences enjoy with information of sport such as a rule of sport and history of athletes and the feel safety in the stadium.

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